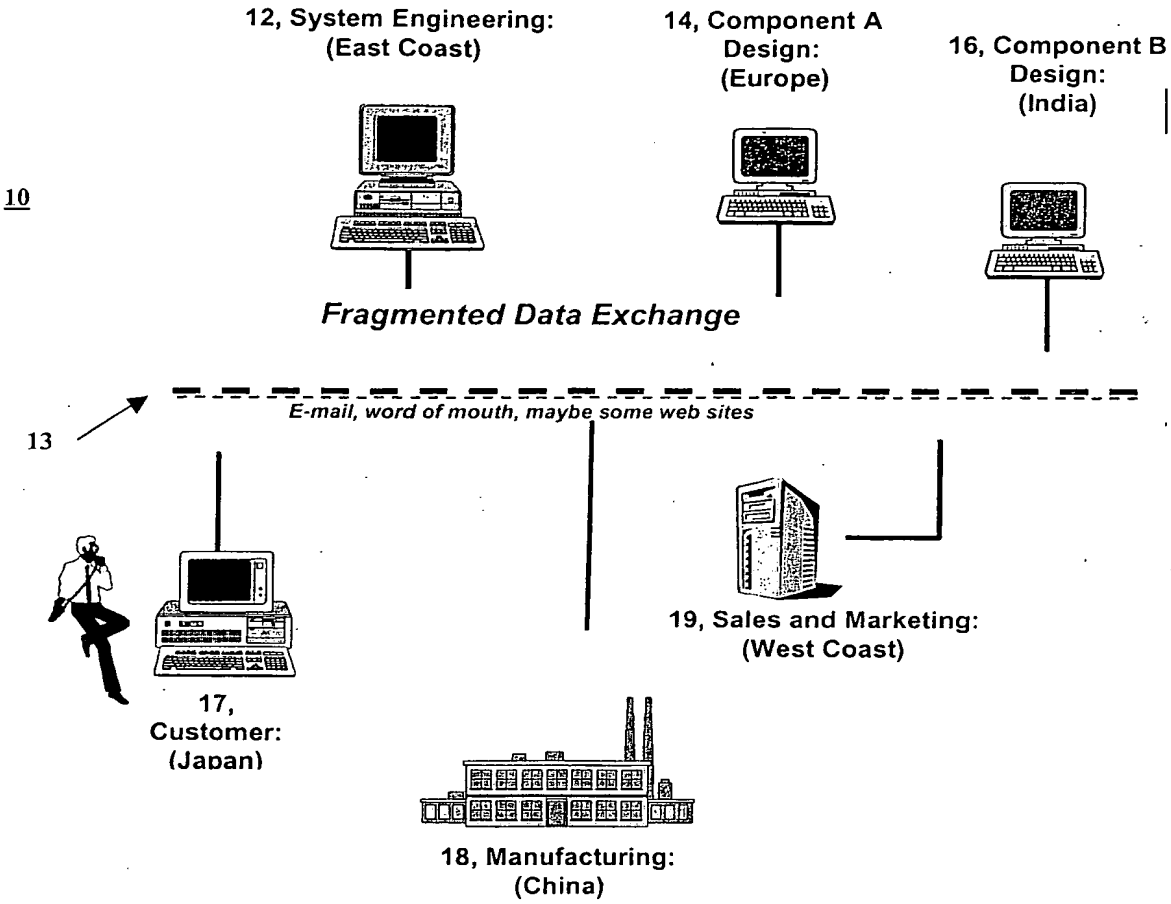


PRIOR ART

FIG. 1

Approved - 09/29/2006 - 10:29:16

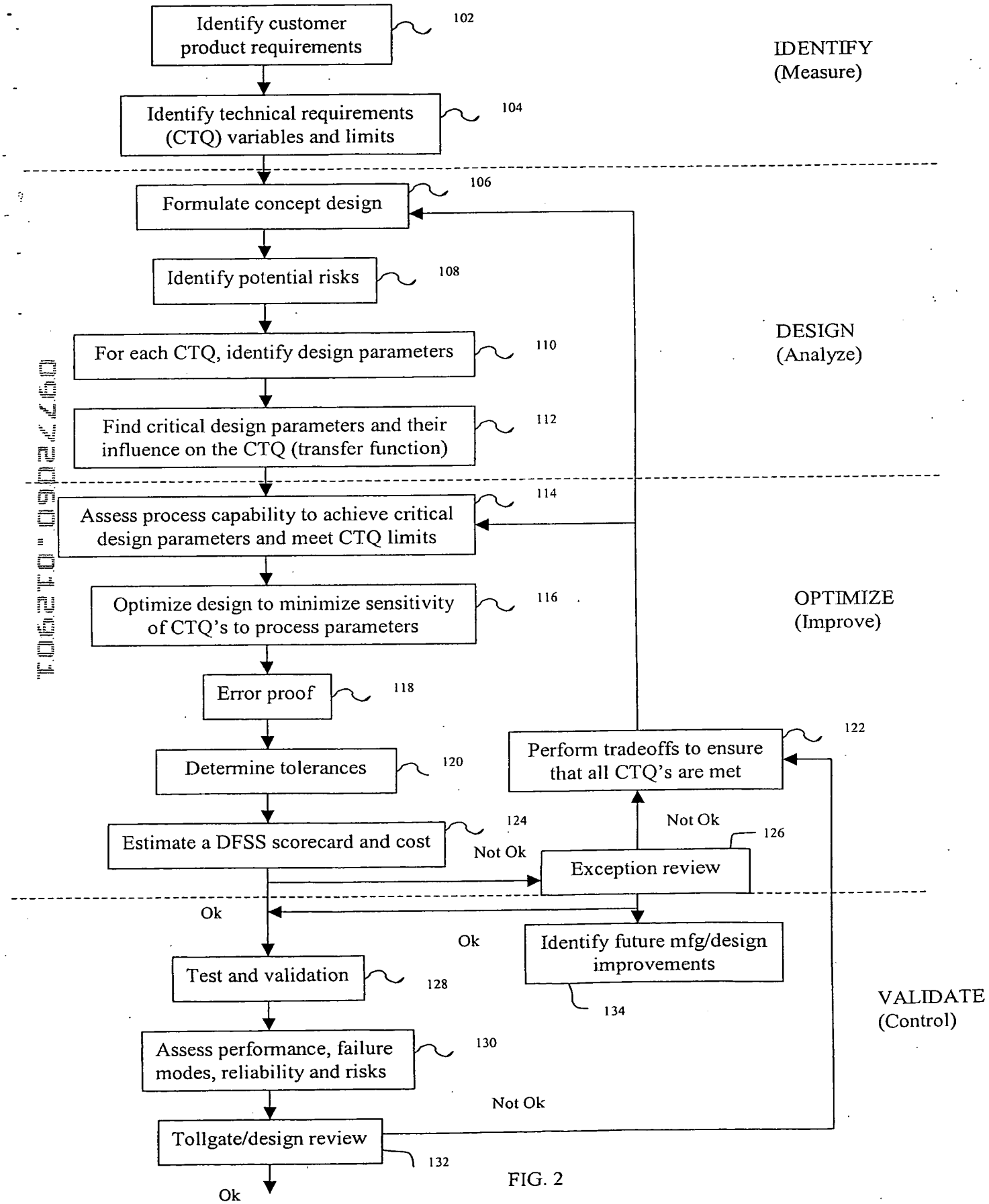

Identify customer product requirements
102
Identify technical requirements (CTQ) variables and limits
104
IDENTIFY (Measure)
Formulate concept design
106
Identify potential risks
108
For each CTQ, identify design parameters
110
Find critical design parameters and their influence on the CTQ (transfer function)
112
DESIGN (Analyze)
Assess process capability to achieve critical design parameters and meet CTQ limits
114
Optimize design to minimize sensitivity of CTQ's to process parameters
116
OPTIMIZE (Improve)
Error proof
118
Determine tolerances
120
Perform tradeoffs to ensure that all CTQ's are met
122
Estimate a DFSS scorecard and cost
124
Not Ok
Not Ok
126
Exception review
Ok
Ok
Identify future mfg/design improvements
134
Test and validation
128
Assess performance, failure modes, reliability and risks
130
Not Ok
Tollgate/design review
132
Ok
VALIDATE (Control)

FIG. 2

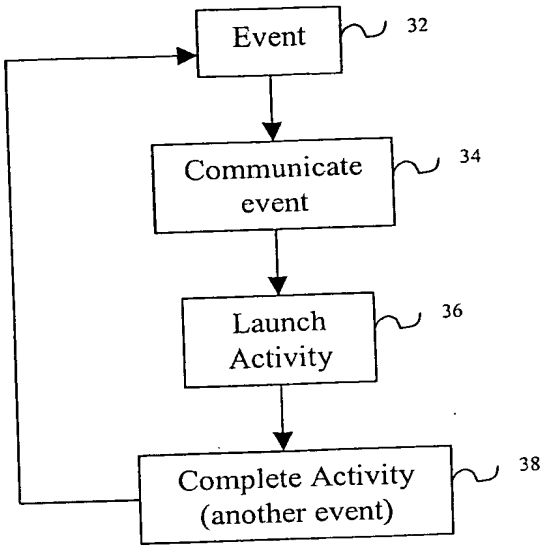


FIG. 3

Patent - 05/05/2006

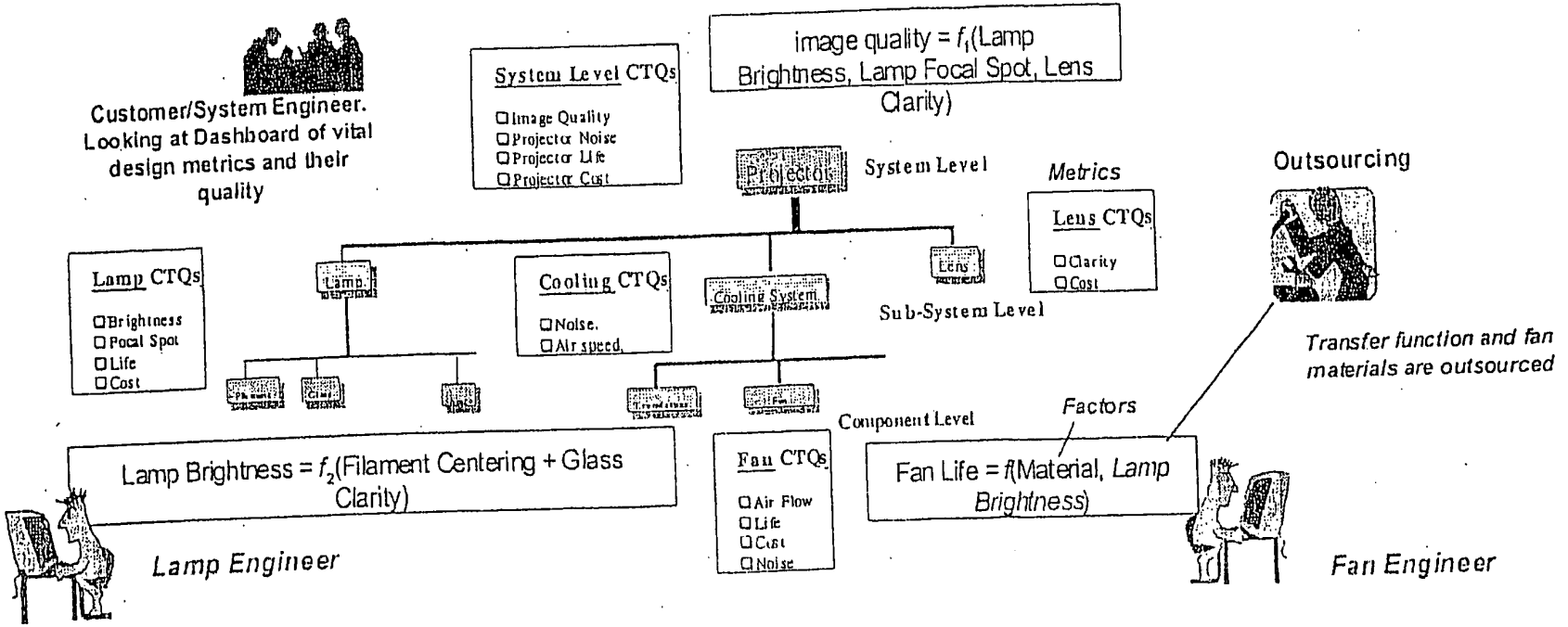

Customer/System Engineer. Looking at Dashboard of vital design metrics and their quality
System Level CTQs
Image Quality
Projector Noise
Projector Life
Projector Cost
image quality = f_1(Lamp Brightness, Lamp Focal Spot, Lens Clarity)
Projector
System Level
Metrics
Outsourcing
Lens CTQs
Clarity
Cost
Lamp CTQs
Brightness
Focal Spot
Life
Cost
Lamp
Cooling CTQs
Noise.
Air speed.
Cooling System
Lens
Sub-System Level
Transfer function and fan materials are outsourced
Component Level
Factors
Fan CTQs
Air Flow
Life
Cost
Noise
Lamp Brightness = f_2(Filament Centering + Glass Clarity)
Fan Life = f(Material, Lamp Brightness)
Lamp Engineer
Fan Engineer

FIG. 4

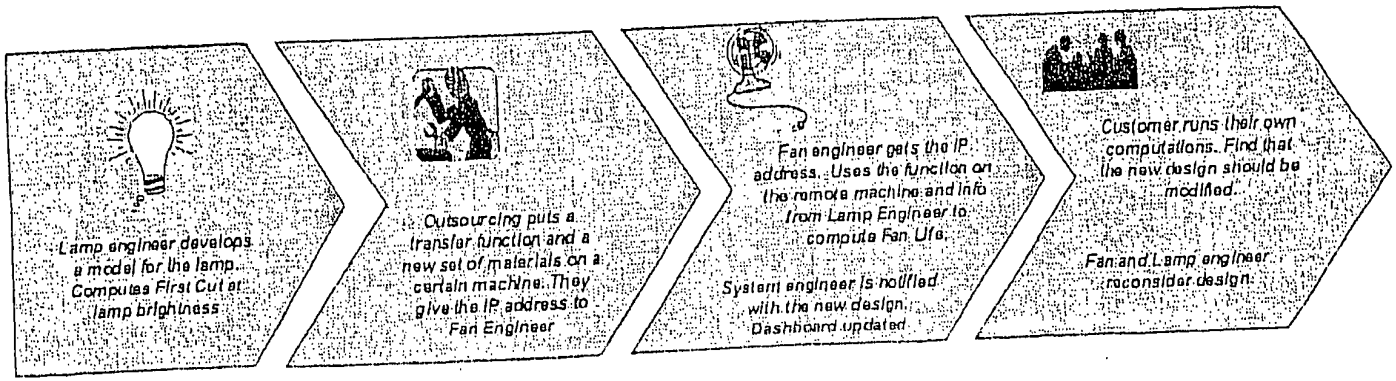

Lamp engineer develops a model for the lamp. Computes First Cut at lamp brightness
Outsourcing puts a transfer function and a new set of materials on a certain machine. They give the IP address to Fan Engineer
Fan engineer gets the IP address. Uses the function on the remote machine and info from Lamp Engineer to compute Fan Ufs.
System engineer is notified with the new design. Dashboard updated
Customer runs their own computations. Find that the new design should be modified.
Fan and Lamp engineer reconsider design.

FIG. 5

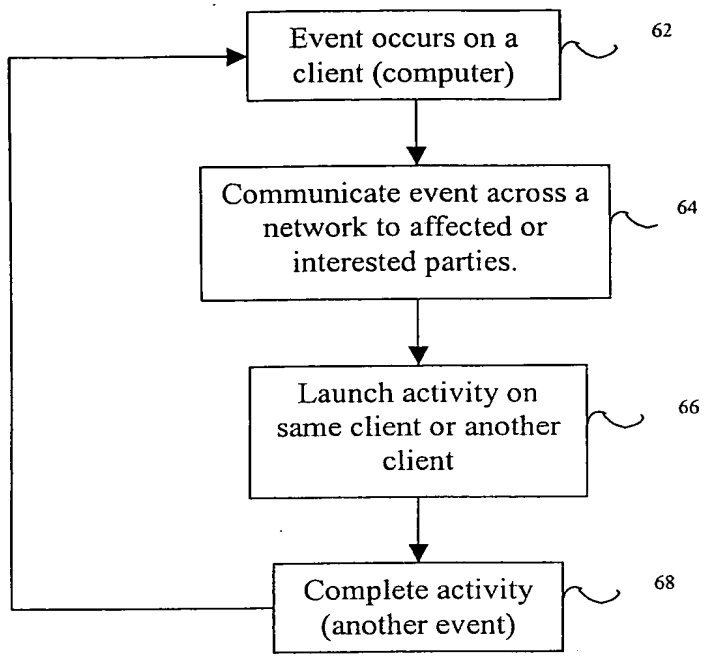
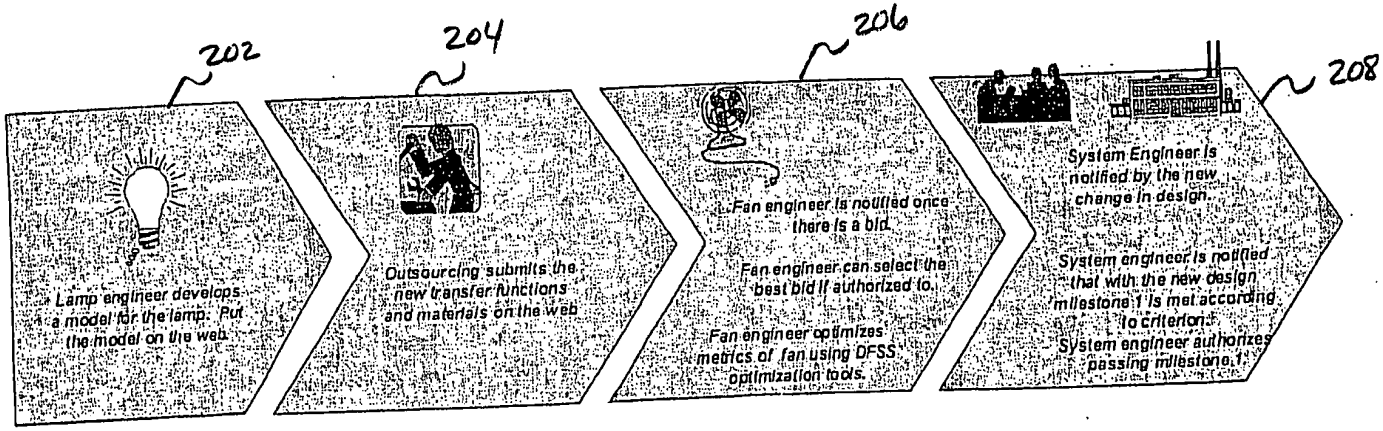
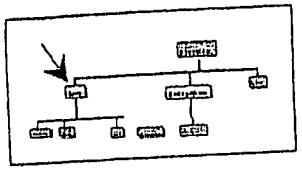


FIG. 6

Tracking: 01200507.0076US1



Lamp Engineer
Double Click on the lamp part on the html file shown on the web browser



Submit the new model, its wrapper, its location on the network. Submit the modified value of lamp brightness.

System automatically checks for authorization.

Lamp Engineer can get at the same site past best models and associated hints.

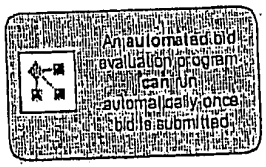
Outsourcing
Double Click on the Transfer function part of the fan subsystem html file shown on the web browser

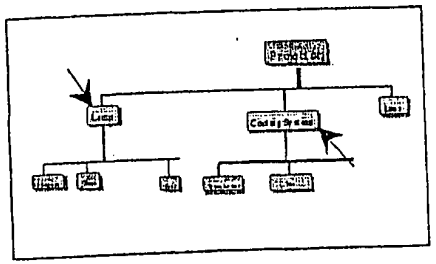
203

Submit the new transfer function.

Submit metrics of the new materials and their quality.

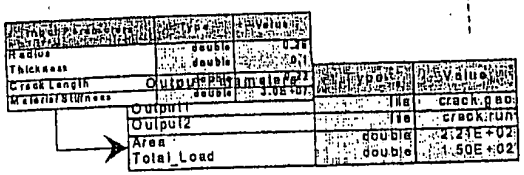
Cannot double click or access any other part of the system.





Fan engineer can access the lamp subsystem to get the newest lamp brightness metric (which was already automatically updated on the system)

Fan engineer can run the model submitted by outsourcing using the DFSS analysis integration tool.



Dashboard is updated automatically.

Factory is notified with the new designs.

Sensors in the floor continuously relay manufacturing capability and quality data to a database so that engineers can optimize using the most recent capability.

FIG. 7

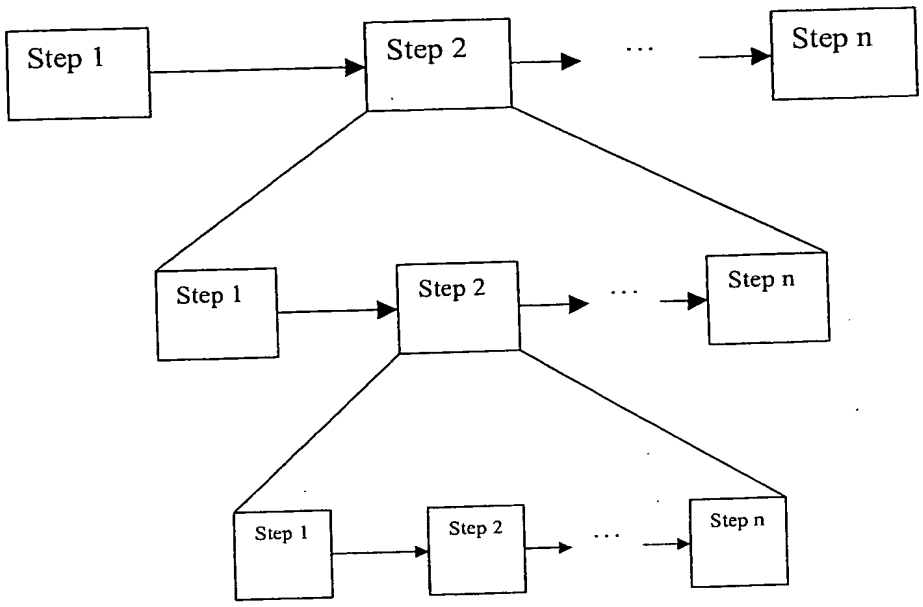


FIG. 8

09/2005 - 04:50 PM

Oracle-2006-1003

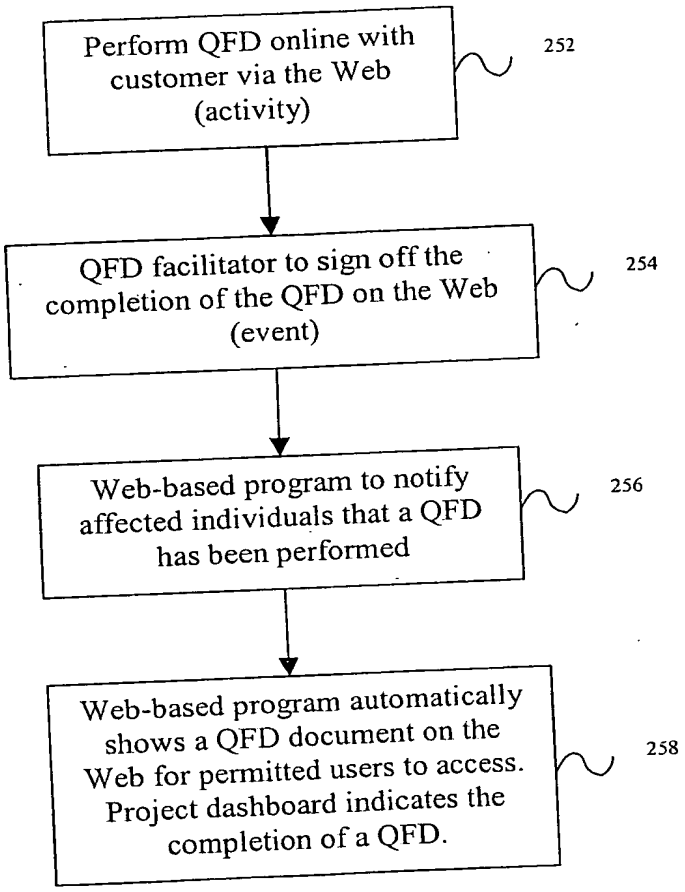


FIG. 9

T0627D*09027260

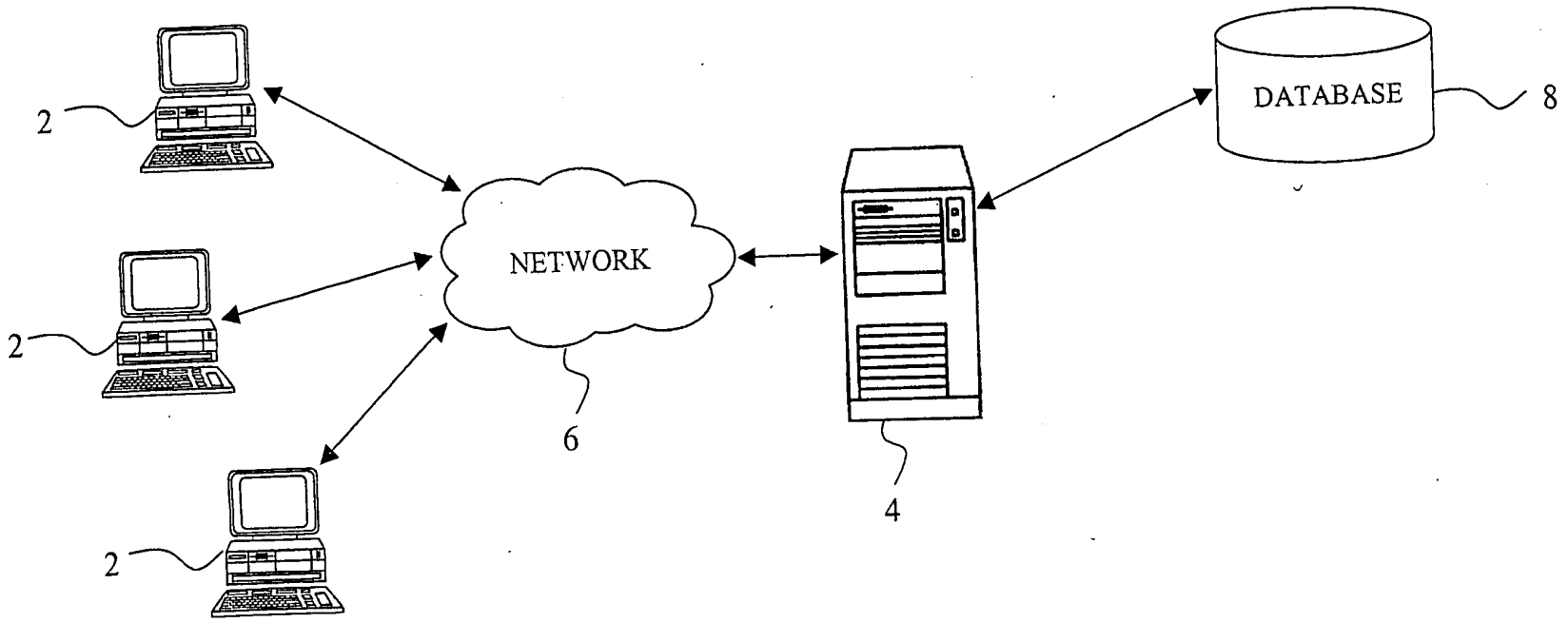
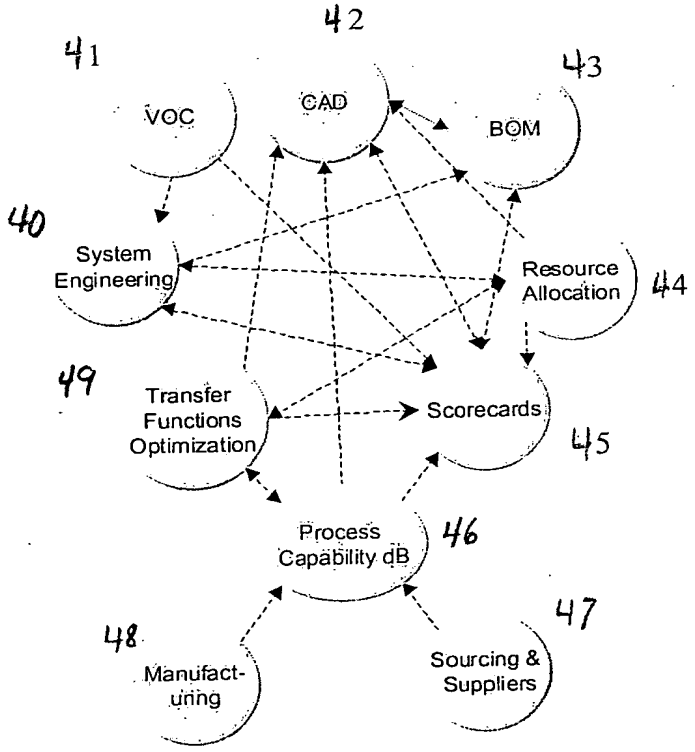


FIG. 10

Document 1 of 2



PRIOR ART

FIG. 11

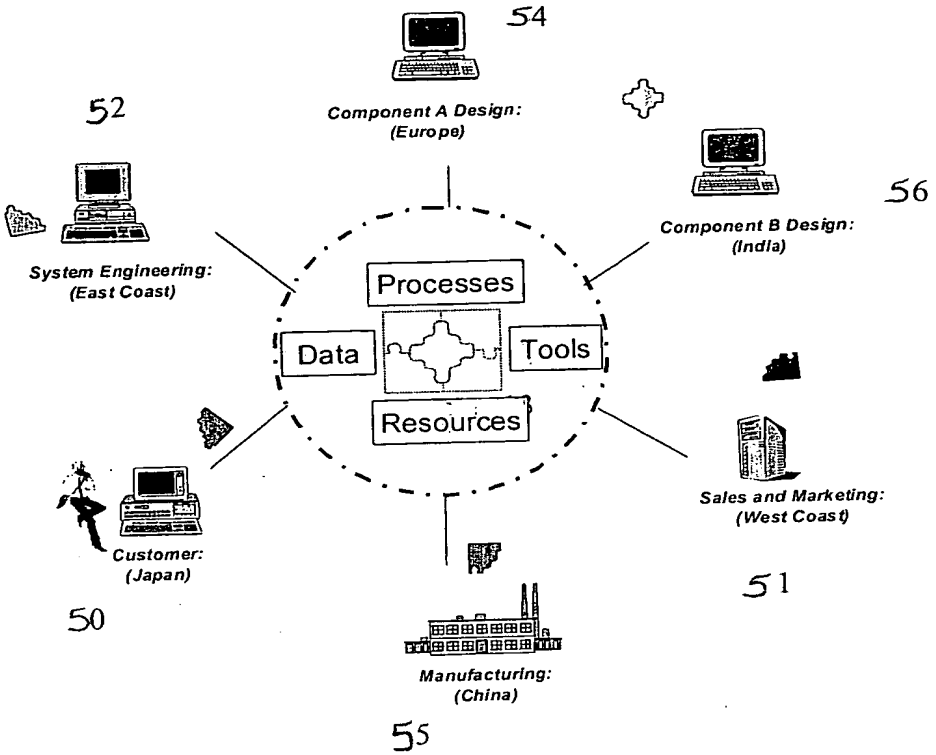

54
52
Component A Design:
(Europe)
56
Component B Design:
(India)
System Engineering:
(East Coast)
Processes
Data
Tools
Resources
Sales and Marketing:
(West Coast)
Customer:
(Japan)
50
51
Manufacturing:
(China)
55

FIG. 12

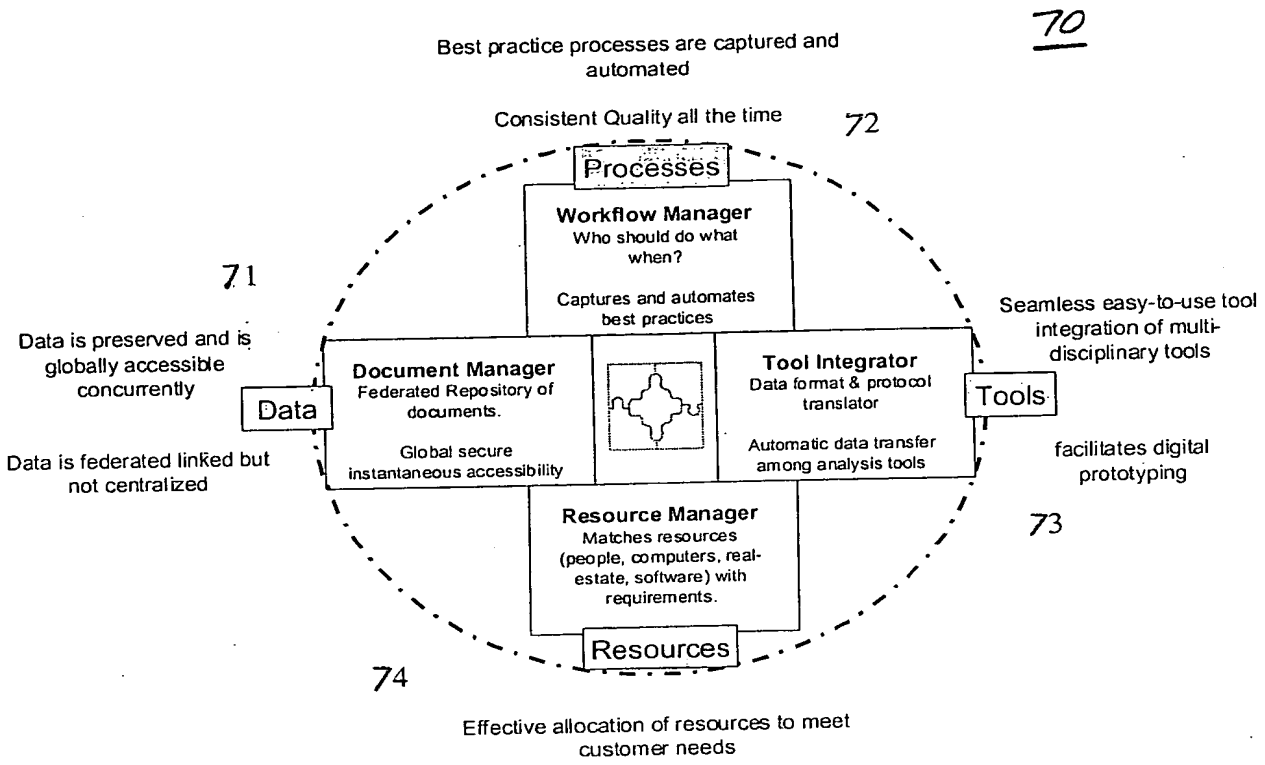

70
Best practice processes are captured and automated
Consistent Quality all the time
72
Processes
Workflow Manager
Who should do what when?
Captures and automates best practices
71
Data is preserved and is globally accessible concurrently
Data
Data is federated linked but not centralized
Document Manager
Federated Repository of documents.
Global secure instantaneous accessibility
Tool Integrator
Data format & protocol translator
Automatic data transfer among analysis tools
Seamless easy-to-use tool integration of multi-disciplinary tools
Tools
facilitates digital prototyping
73
Resource Manager
Matches resources (people, computers, real-estate, software) with requirements.
Resources
74
Effective allocation of resources to meet customer needs

FIG. 13

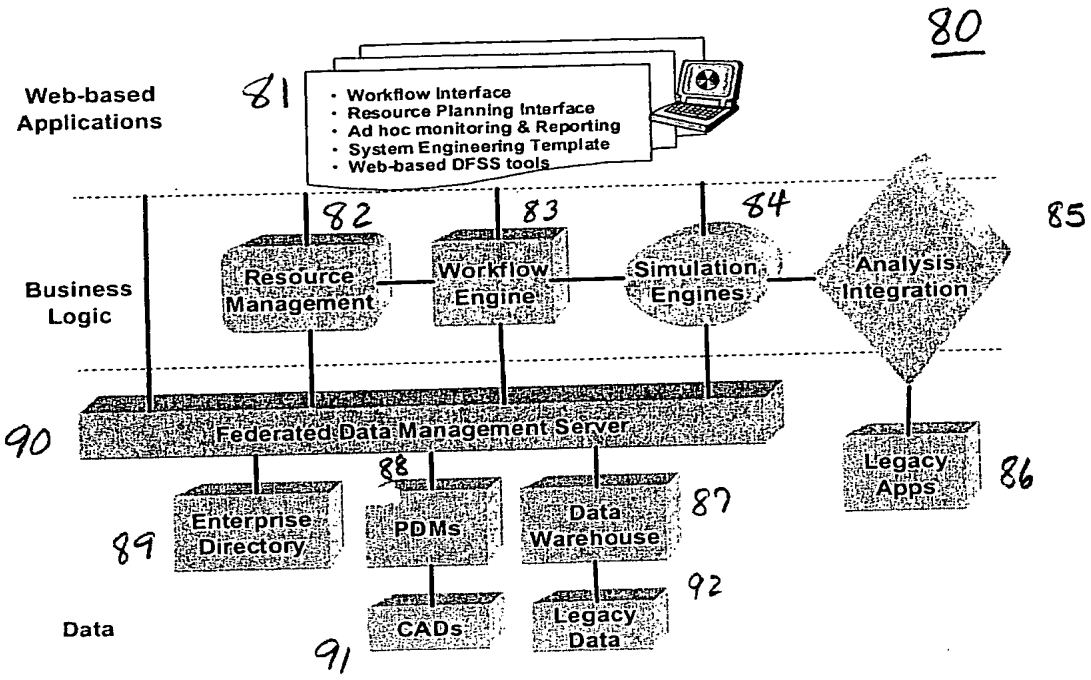

80
Web-based Applications
81
• Workflow Interface
• Resource Planning Interface
• Ad hoc monitoring & Reporting
• System Engineering Template
• Web-based DFSS tools
82
83
84
85
Business Logic
Resource Management
Workflow Engine
Simulation Engines
Analysis Integration
90
Federated Data Management Server
88
Legacy Apps
86
Enterprise Directory
89
PDMs
Data Warehouse
87
92
Data
CADs
Legacy Data
91

FIG. 14

09/2060-01/2004

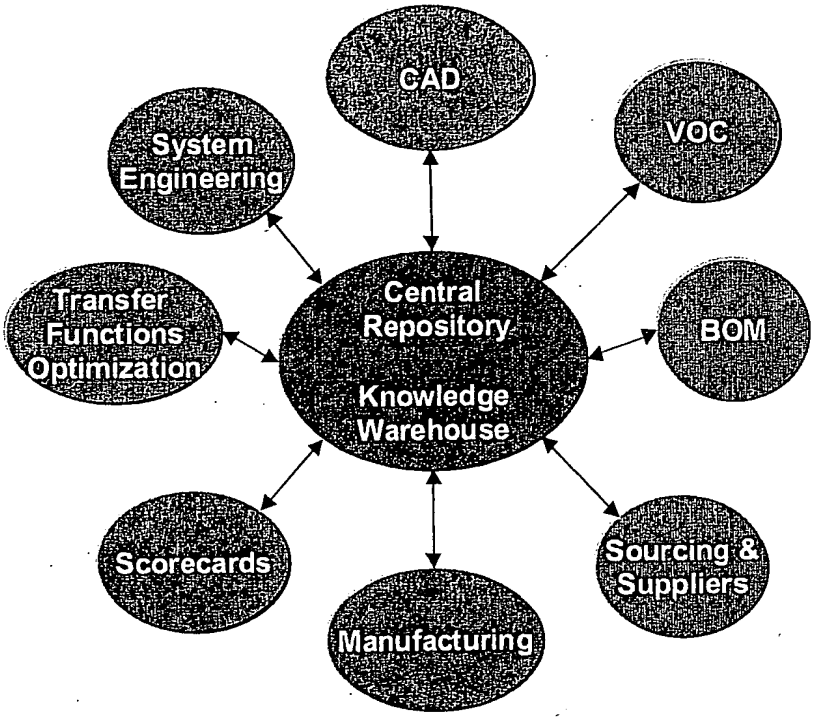


FIG. 15